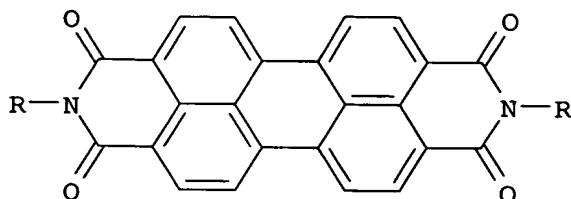


## Amended claims

1. A process for preparing perylene-3,4:9,10-tetracarboxylic  
5 diimides of the general formula I



15 where

R is C<sub>1</sub>-C<sub>30</sub>-alkyl whose carbon chain may be interrupted by  
one or more -O- moieties and/or which may be substituted  
by one or more substituents selected from the group  
20 consisting of C<sub>5</sub>-C<sub>8</sub>-cycloalkyl (which may be substituted  
by one or more C<sub>1</sub>-C<sub>6</sub>-alkyl substituents), phenyl or  
phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl (which may each be substituted by one  
or more C<sub>1</sub>-C<sub>18</sub>-alkyl and/or C<sub>1</sub>-C<sub>6</sub>-alkoxy substituents),  
-OCOR<sup>1</sup>, -N(R<sup>1</sup>)<sub>2</sub>, -SO<sub>2</sub>NH<sub>2</sub>, -SO<sub>2</sub>N(R<sup>1</sup>)<sub>2</sub>, -CON(R<sup>1</sup>)<sub>2</sub> and -COOR<sup>1</sup>;

25 C<sub>5</sub>-C<sub>8</sub>-cycloalkyl whose carbon skeleton may be interrupted  
by one or more moieties selected from the group  
consisting of -O-, -S- and -NR<sup>2</sup>- and/or which may be  
substituted by one or more C<sub>1</sub>-C<sub>6</sub>-alkyl substituents;

30 phenyl, phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, naphthyl or hetaryl, which  
may each be substituted by one or more substituents  
selected from the group consisting of C<sub>1</sub>-C<sub>18</sub>-alkyl,  
C<sub>1</sub>-C<sub>6</sub>-alkoxy, phenylazo, naphthylazo, pyridylazo,  
35 pyrimidylazo, cyano, -N(R<sup>1</sup>)<sub>2</sub>, -CON(R<sup>1</sup>)<sub>2</sub> and -COOR<sup>1</sup>;

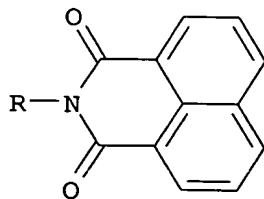
R<sup>1</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>5</sub>-C<sub>8</sub>-cycloalkyl, phenyl or  
phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl;

40 R<sup>2</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl, phenyl or phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl,

by dimerizing a naphthalene-1,8-dicarboximide of the  
formula II

40

ART 34 AMDT



II

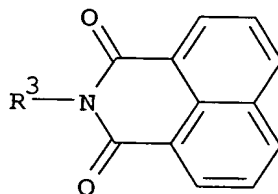
5

10 which comprises effecting said dimerizing in a substantially homogeneous reaction medium consisting essentially of an apolar aprotic organic solvent and an alkali metal base and subsequently reoxidizing the resulting alkali metal salt of the leuco form of the perylene-3,4:9,10-tetracarboxylic diimide in the presence of a polar solvent.

15

2. A process for preparing perylene-3,4:9,10-tetracarboxylic dianhydride, which comprises dimerizing a naphthalene-1,8-dicarboximide of the formula IIa

20

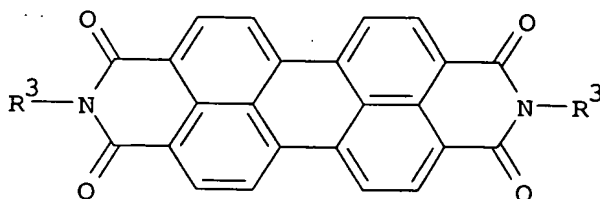


IIa

25

30 where R<sup>3</sup> is cyclohexyl or phenyl which may each be substituted by up to three C<sub>1</sub>-C<sub>4</sub>-alkyl radicals, in a substantially homogeneous reaction medium consisting essentially of an apolar aprotic organic solvent and an alkali metal base and effecting the subsequent reoxidation of the resulting alkali metal salt of the leuco form of the perylene-3,4:9,10-tetracarboxylic diimide of the formula Ia

35



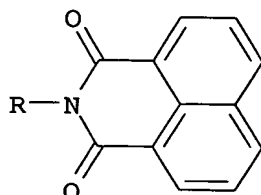
Ia

40

45 in the presence of an inert organic solvent, of an alkali metal base and of water to hydrolyze the diimide to the tetraalkali metal salt of perylene-3,4:9,10-tetracarboxylic acid and finally subjecting this to the action of an aqueous

inorganic acid to convert it into  
 perylene-3,4:9,10-tetracarboxylic dianhydride.

3. A process for preparing naphthalene-1,8-dicarboximides of the  
 5 general formula II



II

15 where

R is C<sub>1</sub>-C<sub>30</sub>-alkyl whose carbon chain may be interrupted by  
 one or more -O- moieties and/or which may be substituted  
 by one or more substituents selected from the group  
 20 consisting of C<sub>5</sub>-C<sub>8</sub>-cycloalkyl (which may be substituted  
 by one or more C<sub>1</sub>-C<sub>6</sub>-alkyl substituents), phenyl or  
 phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl (which may each be substituted by one  
 or more C<sub>1</sub>-C<sub>18</sub>-alkyl and/or C<sub>1</sub>-C<sub>6</sub>-alkoxy substituents),  
 -OCOR<sup>1</sup>, -N(R<sup>1</sup>)<sub>2</sub>, -SO<sub>2</sub>NH<sub>2</sub>, -SO<sub>2</sub>N(R<sup>1</sup>)<sub>2</sub>, -CON(R<sup>1</sup>)<sub>2</sub> and -COOR<sup>1</sup>;

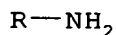
25 C<sub>5</sub>-C<sub>8</sub>-cycloalkyl whose carbon scaffold may be interrupted  
 by one or more moieties selected from the group  
 consisting of -O-, -S- and -NR<sup>2</sup>- and/or which may be  
 substituted by one or more C<sub>1</sub>-C<sub>6</sub>-alkyl substituents;

30 phenyl, phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, naphthyl or hetaryl, which  
 may each be substituted by one or more substituents  
 selected from the group consisting of C<sub>1</sub>-C<sub>18</sub>-alkyl,  
 C<sub>1</sub>-C<sub>6</sub>-alkoxy, phenylazo, naphthylazo, pyridylazo,  
 35 pyrimidylazo, cyano, -N(R<sup>1</sup>)<sub>2</sub>, -CON(R<sup>1</sup>)<sub>2</sub> and -COOR<sup>1</sup>;

R<sup>1</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>5</sub>-C<sub>8</sub>-cycloalkyl, phenyl or  
 phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl;

40 R<sup>2</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl, phenyl or phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl,

by reacting naphthalene-1,8-dicarboxylic anhydride with a  
 primary amine of the general formula III

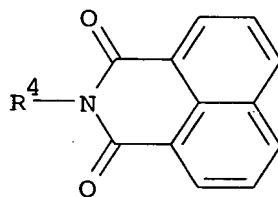


III

which comprises effecting said reacting in the presence of a polar aprotic organic solvent and also of an organic or inorganic acid or of an acidic transition metal salt catalyst or in the presence of phenol.

- 5
4. A process as claimed in claim 3, wherein the reaction mixture (after the naphthalene-1,8-dicarboximide II and its hydrolysis products have been removed) is subjected to an extraction or an azeotropic distillation under atmospheric pressure to recover the organic solvent together with
- 10
- unconverted amine for further reactions.
5. Naphthalene-1,8-dicarboximides of the general formula IIb

15



IIb

20

where:

- 25
- $R^4$  is  $C_1$ - $C_{30}$ -alkyl which is substituted by one or more substituents selected from the group consisting of  $C_5$ - $C_8$ -cycloalkyl (which may be substituted by one or more  $C_1$ - $C_6$ -alkyl substituents), phenyl or phenyl- $C_1$ - $C_6$ -alkyl (which may each be substituted by one or more
- 30
- $C_1$ - $C_{18}$ -alkyl and/or  $C_1$ - $C_6$ -alkoxy substituents),  $-OCOR^1$ ,  $-SO_2NH_2$ ,  $-SO_2N(R^1)_2$ ,  $-CON(R^1)_2$  and  $-COOR^1$  and whose carbon chain may be interrupted by one or more  $-O-$  moieties;
- 35
- $C_5$ - $C_8$ -cycloalkyl whose carbon skeleton is interrupted by one or more moieties selected from the group consisting of  $-O-$ ,  $-S-$  and  $-NR^2-$  and/or is substituted by one or more  $C_1$ - $C_6$ -alkyl substituents;
- 40
- phenyl or phenyl- $C_1$ - $C_6$ -alkyl which are each substituted by one or more substituents selected from the group consisting of  $C_1$ - $C_{18}$ -alkyl,  $C_1$ - $C_6$ -alkoxy, phenylazo, naphthylazo, pyridylazo, pyrimidylazo, cyano,  $-CON(R^1)_2$  and  $-COOR^1$ ;
- 45
- naphthyl, 2- or 3-pyrryl, 2-, 3- or 4-pyridyl, 2-, 4- or 5-pyrimidyl, 3-, 4- or 5-pyrazolyl, 6-quinaldyl, 3, 5-, 6- or 8-quinolinyl, 2-benzoxazolyl, 5-benzothiadiazolyl,

43

or 1- or 5-isoquinolyl which may each be substituted by one or more substituents selected from the group consisting of C<sub>1</sub>-C<sub>18</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy, phenylazo, naphthylazo, pyridylazo, pyrimidylazo, cyano, -CON(R<sup>1</sup>)<sub>2</sub> and -COOR<sup>1</sup>;

5

R<sup>1</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>5</sub>-C<sub>8</sub>-cycloalkyl, phenyl or phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl;

10

R<sup>2</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl, phenyl or phenyl-C<sub>1</sub>-C<sub>6</sub>-alkyl.

15

20

25

30

35

40

45